Acc. Nr. AP0049426 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code UR 0129

102895z Optimum carbon content in high-speed steels.

Kremnev, L. S.; Addaskin, A. M.; Geller, Yu. A. (Mosk. Stankoinstrum. Inst., Moscow, USSR). *Metalloved. Term. Obrab. Metal.* 1970, (1), 25–31 (Russ). The effect was investigated of C content on properties and transformations of W and W–Mo steels. Steel compns. were: steel R18 W 17.0–17.9, Cr 4.1–4.3, V 1.1–1.2, and C 0.65–1.04%; steel R 12 W 11.6–12.6, Cr 3.5–3.6, V 1.55–1.7, and C 0.77–1.30%; steel R 12F3 W 12.0–13.0, Cr 3.8–4.0, V 2.6–2.7, and C 0.97–1.45%; steel R6M3 W 6.2–6.4, Mo 3.2–3.6, Cr 3.0–3.5, V 2.1–2.2, and C 0.95–1.13%, and steel R6M5 W 5.8–6.3, Mo 5.2, Cr 4.2–4.4, V 2.0–2.1, and C 0.75–1.09%. Secondary hardness and red-hardness of high speed steels increases up to a detd. near quasi-eutectic C concn., higher than in std. steels. Further increasing of C lowers max. hardness as well as red-hardness. Max. hardness and red-hardness were obsd. with R18 and R12 steels contg. ~1% C, for R12F3 steel contg. 1.15% C, and for W-Mo steels contg. 1.05–1.10%. In this case hardness attains HRC 65.5–67,

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REEL/FRAME
19801262

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and red-hardness (for hardness HRC 60) 625–635°, i.e., values which are usually obtained for highly alloyed V-steels R9F5 and R14F4 with poorer grinding qualities. In steels with higher C, absence of ferrite, after heating to temps. above the pearlite transformation region, provides better dissoln. of carbides. In these steels pptn. of carbides during tempering takes place in a narrower temp. interval, hence the carbides are more dispersed and homogeneous in compn. and size, than in steels with lower C content. Increased C content to 1.0–1.05% is advisable for W-Mo steels, and partly also for R6M5 steel, particularly when they are used instead of highly alloyed V steels, because of their better mech. properties and grinding ability. Jiri Becvar

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Acc. Nr. AP0039670 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code WR 0096

G

68942a Effect of errors during the determination of carbon on the accuracy of calculations of mechanically incomplete mazut combustion. Kovbasyuk, A. S.; Geller, Z. I.; Ashikhmina, N. M. (Odess. Tekhnol. Inst. Pishch. Kholod. Prom., Odessa, USSR). *Teploenergetika* 1970, 17(1), 76-8 (Russ). The errors assocd. with the title method (Vnukov, Goikhman, Madoyan, and Migalin, 1966) are evaluated. The method consists of trapping the foots and detn. of their C content by combustion to CO_2 at 700°. The CO_2 is absorbed by an excess of a soln. of $Ba(OH)_2$, which is then back titrated by HCl. A detailed anal. of errors was carried out.

M. Shelef

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11 dc

REEL/FRAME
19740948

Acc. Nr: AP0055201 Abstracting Service: CHEMICAL ABST. 6 76 Ref. Code: UR 0065

113167q Heat transfer from condensing water vapor to a moving film of mineral oil. Geller, Z. L.; Kagermanov, S. M. (USSR). *Khim. Tekhnol. Topl. Masel* 1970, 15(2), 29–32 (Russ). The title study was conducted in a closed system on a 40-mm diam. by 1100 mm, standing, smooth-wall, stainless-steel tube. Low-pressure, 101–6°, satd. steam condensing and moving at ≦0.005 m/sec and 2-oils with 20° viscosities (ν) of 18.8 and 385 cST heated externally to 20, 30, and 40° were used at linear liq. flow rates of 3.2–152 kg/m hr. The mode of flow was obsd. visually and photographically and was detd. to be laminar or wavy (ripple)-laminar. The heat-transfer coeff. (α) was detd. for Reynolds (Re) nos. 0.07–22, Prandtl (Pr) nos. 74–1072, Kutateladze nos. 33–55, and Nusselt nos. 51–1817. α depended on the hydrodynamics of the oil film, and the phys. characteristics, of the oil. α increased as the ν of the oil increased and decreased with tube length; α initially of the order of 1050 and 700 kcal/m² hr degree for the 30 and 40°, oils, resp., decreased sharply to ~50 at a tube height of 400 mm. Calcd. and exptl. detd. α agreed within a satisfactory std. deviation.

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GELLERMAN U.G.

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 2/70

243795 FLAT GLASS CUTTING EQUIPMENT consists of a table, carrier with cutting tool, and drive mechanism for the tool. The aim of this invention is to increase the working life of the cutter and this is done with the help of a means of support over the working surface of the table. The diagrams show the lateral and plan views of the cutting assembly with the side brackets (1) supporting the guide rail (2) on which the rollers run which hold the cutting head (3). These rollers are both horizontal (4) and vertical (8) and there is adequate provision of springing (7 and 14) to cater for movements and pressures on the cutting tool (12). A second carrier travels along the guide rail on the rollers (18). This incorporates a stop device (21) which abuts against the side of the flat piece of glass during the cutting motion and prevents the glass from moving. The method of setting the cutter and its operation are included.

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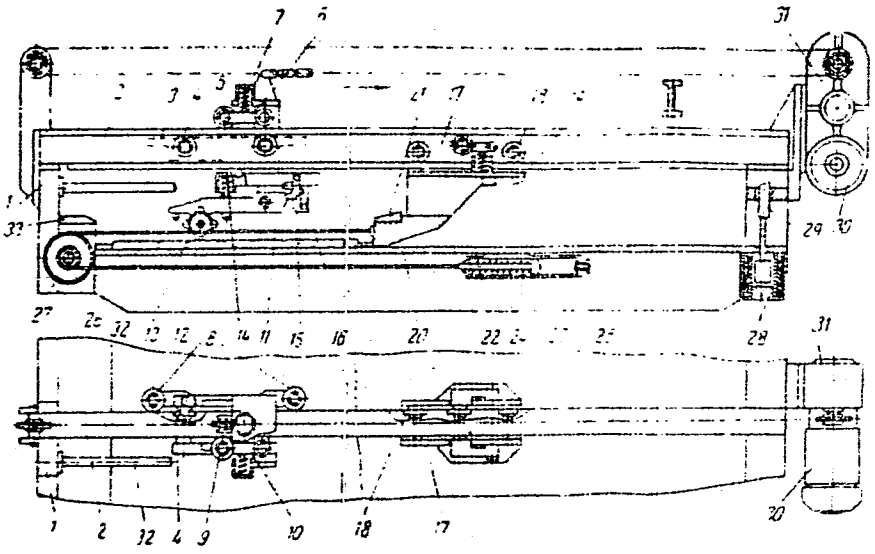

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AA0052549

20.3.67. as 1142046/29-33, PROKSHIN, S.S. et al.
S. Ordzhonikidze Ufim Aviation Inst. (3.10.69)
Bul. 17/14.5.69. Class 32a, Int. Cl. C 03b.

INT

Prokshin, S. S.; Gellerman, V. G.; Danovich, A. V.; Getsonok, A. L.
Ufimskiy Aviatsionnyy Institut im. Sergo Ordzhonikidze

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19821210

USSR

UDC 542.943:546.791.3

PERETRUKHIN, V. F., KROT, N. N., GEL'MAN, A. D.

"Kinetics of Spontaneous Oxidation of Trivalent Uranium in Chloride Solutions"

Leningrad, Radiokhimiya, Vol 12, No 1, 1970, pp 96-101

Abstract: A kinetic study was made of spontaneous oxidation of uranium (III) at room temperature in chloride solutions in the absence of oxygen in the acidity range from pH = 4.1 to 8.3 M HCl, as well as in 0.5 M HCl with a varying LiCl concentration from 0 to 9.5 M. In each case the reaction rate constant K was calculated, as well as the oxidation half-life of trivalent uranium $T_{1/2}$, connected with the constant by the simple relation $T_{1/2} = \ln 2/K$. It was found that under all the investigated conditions the reaction has a first order according to uranium (III) and is complexly dependent on the hydrogen and chloride ion concentration. The oxidation rate is minimal in 0.2-0.5 M HCl (1.5 percent uranium (III) in 24 hours) and increases with an increase in HCl concentration from 0.2 to 8.3 M, as well as with a decrease

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910011-5"

USSR

PERETRUKHIN, V. F., et al., Radiokhimiya, Vol 12, No 1, 1970, pp 96-101

in acidity to pH = 3-4. The oxidation rate also increases with additions of lithium chloride. The reaction rate constants were not found to be heavily dependent on temperature. With a 10°C rise in temperature there is a 1.7-fold increase in the reaction rate in 6 M HCl and not more than a 2-fold increase in 0.5 M HCl. The activation energy was found to be 9.9 kcal/mole for 6 M HCl and not more than 13 kcal/mole for 0.5 M HCl. The oxidation rate in chloride solutions is especially great under conditions where uranium (III) occurs in hydrolyzed or complex forms.

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USSR

UDC 546.799.541.5

ZAKHAROVA, F. A., ORLOVA, M. M., and GEL'MAN, A. D.

"Solid Compounds of Plutonium (VII)"

Leningrad, Radiokhimiya, Vol 14, No 1, 1972, pp 123-125

Abstract: Earlier it was reported that neptunium (VII) and plutonium (VII) are present in alkaline solutions as the anion MeO_5^{3-} which form slightly soluble compounds with the alkali and alkaline earth metals. The most suitable cations for the formation of sparsely soluble compounds of neptunium (VII) were shown to be the electropositive complex ions of hexamine cobalt chloride $[Co(NH_3)_6]Cl_3$ (compound A) and chloropentaminoplatinum chloride (IV) $[Pt(NH_3)_5Cl]Cl_3$ (compound B). However, problems occurred when this method was applied to Pu and therefore a new method of precipitation was developed. For compound A this involved preparing a solution 1.68×10^{-2} M in Pu(VII) by oxidizing a slurry of biplutonate with ozone in a 5.2M solution of sodium hydroxide. A solution containing a stoichiometric amount of A (or slightly less) was quickly added to the Pu solution. A greenish-black precipitate was formed which separated rapidly from the mother liquor. The precipitate was

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USSR

ZAKHAROVA, F. A., et al., Radiokhimiya, Vol 14, No 1, 1972, pp 129-135

transferred to a porous glass filter and separated under vacuum. The reduction of plutonium from (VII) to (VI) in the precipitate is accompanied by a change in color from greenish-black to reddish-brown. Additional reactions occur if the precipitate is not separated from the solution. A 90.3% yield was obtained for the compound $[Co(NH_3)_6]PuO_5 \cdot 3H_2O$. For compound B, an aqueous or weakly alkaline solution containing a stoichiometric amount of B was added to a 2-5M NaOH solution of Pu(VII) resulting in a dark green fine-grained precipitate. Excess B results in the reduction of Pu(VII) but Pt(IV) catalyzes the reaction to a lesser degree than does the cobalt. This precipitate was also separated from the solution by filtration, washed and analyzed for Pu and Pt. It had the formula $[Pt(NH_3)_5Cl]PuO_5 \cdot 3H_2O$; no % yield was given. Optical-crystallographic studies indicated that both precipitates were anisotropic, the one from A being in the form of platelets and the one from B in the form of grains.

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USSR

UDC 546.799.3 226-386+546.791.6 226-386

MEFOD'YEVA, M. P., KROT, N. N., BUGAKOVA, L. N., and GEL'MAN, A. D., Institute of Physical Chemistry, Acad. Sc. USSR

"Synthesis of Some Neptunium (VI) and Uranium (VI) Sulfates"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 17, No 5, May 72, pp 1423-1428

Abstract: Complex sulfates of hexavalent neptunium and uranium were prepared from aqueous solutions of the starting materials. Following complexes were isolated: $K_2NpO_2(SO_4)_2 \cdot 2\ H_2O$, $Cs_2NpO_2(SO_4)_2$, $Cs_2(NpO_2)_2(SO_4)_3$, $[Co(NH_3)_6]_2NpO_2(SO_4)_4 \cdot n\ H_2O$ (n = 5 or 8), $[Co(NH_3)_6]_2UO_2(SO_4)_4 \cdot n\ H_2O$ (n = 5 or 8), $[Co(NH_3)_6]_2(UO_2)_2(SO_4)_5 \cdot 6H_2O$, $[Co(NH_3)_6]_4Cs_6[UO_2(SO_4)_4]_3 \cdot 8\ H_2O$.

It has been established that the bond strength of neptunium and uranium with the SO_4 groups increases when the $Co(NH_3)_6^{3+}$ ions are partially substituted in the internal sphere with the Cs^+ ions. The bond strength of oxygen with

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MEFOD'YEVA, M. P., et al, Zhurnal Neorganicheskoy Khimii, Vol 17, No 5, May 72, pp 1423-1428

neptunium in disulfate complexes is about the same as in the tetrasulfates; these complexes may coexist in the solutions. Selective isolation of one of these forms in preference to the other depends on the selection of the cation. The frequencies of the antisymmetric vibrations in the IR spectra of uranium and neptunium complexes are about the same for similar composition types.

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USSR

UDC 546.799.541.5

ZAKHAROVA, F. A., ORLOVA, M. M., and GEL'MAN, A. D.

"Solid Compounds of Plutonium (VII)"

Leningrad, Radiokhimiya, Vol 14, Vyp 1, 1972, pp 123-125

Abstract: Earlier it was reported that neptunium (VII) and plutonium (VII) are present in alkaline solutions as the anion MeO_5^{3-} which form slightly soluble compounds with the alkali and alkaline earth metals. The most suitable cations for the formation of sparsely soluble compounds of neptunium (VII) were shown to be the electropositive complex ions of hexamine cobalt chloride $[Co(NH_3)_6]Cl_3$ (compound A) and chloropentaminoplatinum chloride (IV) $[Pt(NH_3)_5Cl]Cl_3$ (compound B). However, problems occurred when this method was applied to Pu and therefore a new method of precipitation was developed. For compound A this involved preparing a solution 1.68×10^{-2}M in Pu(VII) by oxidizing a slurry of biplutonate with ozone in a 5.2M solution of sodium hydroxide. A solution containing a stoichiometric amount of A (or slightly less) was quickly added to the Pu solution. A greenish-black precipitate was formed which separated rapidly from the mother liquor. The precipitate was transferred to a porous glass filter and separated under vacuum. The reduction of plutonium from (VII) to (VI) in the precipitate

is accompanied by a change in color from greenish-black to reddish-brown. Additional reactions occur if the precipitate is not separated from the solution. A 90.3% yield was obtained for the compound $[Co(NH_3)_6]PuO_5 \cdot 3H_2O$. For compound B, an aqueous or weakly alkaline solution containing a stoichiometric amount of B was added to a 2-5M NaOH solution of Pu(VII) resulting in a dark green fine-grained precipitate. Excess B results in the reduction of Pu(VII) but Pt(IV) catalyzes the reaction to a lesser degree than does the cobalt. This precipitate was also separated from the solution by filtration, washed and analyzed for Pu and Pt. It had the formula $[Pt(NH_3)_5Cl]-PuO_5 \cdot 3H_2O$; no % yield was given. Optical-crystallographic studies indicated that both precipitates were anisotropic, the one from A being in the form of platelets and the one from B in the form of grains.

Thorium and Uranium

UDC 546.799:541.5

USSR

KOMKOV, YU. A., KROT, N. N., and GEL'MAN, A. D.

"Heptavalent State of Transuranium Elements. XI. Reaction of Plutonium (VII) With Some Reducing Agents in Alkaline Solutions"

Leningrad, Radiokhimiya, Vol 12, No 5, 1970, pp 692-697

Abstract: The kinetics of plutonium (VII) reduction in 0.5-4 M KOH by means of iodide and iodate ions was studied spectrophotometrically. The effect of various factors on the rate of these reactions was studied and a possible mechanism for them was proposed. Semiquantitative studies of other reducing agents made it possible to classify them according to their reaction rate. The first group covered the most active reducing agents, including iodides, iodates, hydrogen, ferrocyanide, hydrazine and hydroxylamine peroxides, ascorbic acid, tin (II), and formate and sulfite ions. In the intermediate group the following were included: methanol, ethanol, formaldehyde, and thiosulfate ions. The compounds which react with plutonium more slowly than water reacts comprised the third group and included the nitrile, acetate, and oxalate ions.

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USSR

UDC 541.51:546.799.3

KROT, N. N., MEFOD'YEVA, M. P., SHILOV, V. P. and GEL'MAN, A. D.

"Heptavalent State of Transuranium Elements. IX. New Methods for Obtaining Neptunium (VII). Disproportionation of Neptunium (VI) in Alkaline Media"

Leningrad, Radiokhimiya 12, No 3, 1970, pp 471-477

Abstract: In dilute alkaline solutions, neptunium (VI) is reversibly oxidized to the heptavalent state by ferricyanide ions. For a constant value of the ionic strength, the equilibrium constant of the reaction is proportional to $[OH^-]^3$. The interaction of neptunium (VI) with silver oxides was studied in alkaline media. It was established that silver suboxide oxidizes neptunium (VI) to an appreciable extent only in solutions with an alkali concentration of more than 8 M. In the presence of AgO, neptunium (VII) is formed with 0.2M KOH. Neptunium (VI) is practically quantitatively oxidized by an excess of AgO when the alkali concentration is 2-3 M. An excess of $KBrO_3$ (at 290-310°) or $KClO_3$ (at 390-400°) will completely and rapidly oxidize neptunium to the heptavalent state in alkali metal melts. The interaction of NpO_2 with the above oxidizing agents is slow and does not go to completion. In some alkaline solutions, neptunium (VI) is to a substantial extent disproportionated into neptunium (VII) and (V). The equilibrium constant of this extremely rapid reaction increases sharply with increasing alkali concentration.

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1/2 019 UNCLASSIFIED PROCESSING DATE--18OCT70

TITLE--HEPTAVALENT STATE OF NEPTUNIUM AND PLUTONIUM -U-

AUTHOR-(03)-KROT, N.N., GELMAN, A.D., MEFODYEVA, M.P.

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COUNTRY OF INFO--USSR

SOURCE--VESTN. AKAD. NAUK SSSR 1970, 40(3), 47-61

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NEPTUNIUM, PLUTONIUM, REDOX REACTION, CHEMICAL VALENCE, HYDROGEN ION CONCENTRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0825 STEP NO--UR/0030/70/040/003/0057/0061

CIRC ACCESSION NO--AP0116354

UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116354

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. PROVING THE EXISTENCE OF NP PRIMEVII AND PU PRIMEVII ARE SURVEYED. REDOX POTENTIALS OF NP PRIMEVII-NP PRIMEVI AND PU PRIMEVII-PU PRIMEVI WERE EXPTL. DETD. AS 0.6 AND 0.95 PLUS OR MINUS 0.15V IN M NAOH. THE POTENTIAL OF NP PRIMEVII-NP PRIMEVI AT PH SMALLER THAN 7 WAS DETD. AS GREATER THAN 2 V.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--EFFECT OF ANIONS ON THE KINETICS OF THE SPONTANEOUS OXIDATION OF URANIUM III IN AQUEOUS SOLUTIONS -U-

AUTHOR-(03)-PERETRUKHIN, V.F., KROT, N.N., GELMAN, A.D.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 101-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--OXIDATION, URANIUM, AQUEOUS SOLUTION, ANION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1713 STEP NO--UR/0186/70/012/001/0101/0105

CIRC ACCESSION NO--AP0125334

UNCLASSIFIED

2/2 017 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125334

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE APPARENT RATE CONST. OF SPONTANEOUS OXIDN. OF U PRIME 3PLUS (K) IN 0.5 AND 6.0M HCLO SUB4, 0.25 AND 4.0M H SUB2 SO SUB4, 0.5 MOLAR HCL, 0.5 MOLAR HCL CONTG. CH SUB3 COOH (1 MOLE-1), 1.34 M AC O PRIME NEGATIVE SOLN. AT PH 2; ACO PRIME NEGATIVE AT PH 4.5, ACO PRIME NEGATIVE CONTG. (NH SUB4) SUB2 SO SUB4 (0.5 MOLE-1.) AT PH 4.3, AND 1.3 M ACETATE SOLN. CONTG. EDTA (0.03 MOLE-1.) AT PH 4.3, AT 22DEGREES, HAS VALUES OF 1.81 TIMES 10 PRIME NEGATIVE5, 8.7 TIMES 10 PRIME NEGATIVE4, 8.52 TIMES 10 PRIME NEGATIVE7, 4.66 TIMES 10 PRIME NEGATIVE5, 1.8 TIMES 10 PRIME NEGATIVE7, 1.9 TIMES 10 PRIME NEGATIVE 7, 3.8 TIMES 10 PRIME NEGATIVE6, 1.91 TIMES 10 PRIME NEGATIVE3, 3.75 TIMES 10 PRIME NEGATIVE4 AND 3.8 TIMES 10 PRIME NEGATIVE3 SEC PRIME NEGATIVE1, RESP. IN THE HCLO SUB4 AND H SUB2 SO SUB4 SOLNS., AN INCREASE IN THE TEMP. TO 57-61DEGREES INCREASES THE VALUE OF K BY NEARLY 2 ORDERS OF MAGNITUDE. THE ADDN. OF RONGALITE TO 0.5 H HCL INCREASES SOMEWHAT THE RATE OF OXIDN. OF U PRIME 3PLUS, WHILE THE ADDN. OF AMMONIUM OXALATE TO DIL. CH SUB3 COOH SOLNS. CAUSES INSTANTANEOUS OXIDN. OF THE U PRIME 3PLUS TO U PRIME 4PLUS. THE ENERGY OF ACTIVATION FOR THE OXIDN OF U PRIME 3PLUS IN HCLO SUB4 AND H SUB2 SO SUB4 SOLNS. IS 22 AND 13 KCAL-MOLE, RESP.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--27NOV7C

TITLE--KINETICS OF THE SPONTANEOUS OXIDATION OF URANIUM III IN CHLORIDE SOLUTIONS -U-

AUTHOR-(03)-PERETRUKHIN, V.F., KROT, N.N., GELMAN, A.D.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(1), 96-101

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--URANIUM, CHLORIDE, CHEMICAL KINETICS, ACTIVATION ENERGY, OXIDATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1712 STEP NO--UR/0186/70/012/001/0096/0101

CIRC ACCESSION NO--AP0125333

UNCLASSIFIED

2/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0125333

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SPONTANEOUS OXION. OF U PRIME3PLUS IN AQ. CHLORIDE SOLNS IS A REACTION OF THE 1ST ORDER WITH RESPECTS TO U; AT 22DEGREES, THE HALF CONVERSION TIME T SUBONEHALF INCREASES FROM 0.45 TO 1360 AND THEN DECREASED TO 0.66 HR (THE RESP. VALUES OF THE APPARENT RATE CONST. OF THE REACTION K ARE 4.27 TIMES 10 PRIME NEGATIVE4, 1.4 TIMES 10 PRIME NEGATIVE7, AND 2.91 TIMES 10 PRIME NEGATIVE4 SEC PRIME NEGATIVE1) WHEN THE HCL CONCN. IS INCREASED FROM 10 PRIME NEGATIVE4.1 TO 0.2 TO 8.3M. RESP. AT A CONST. HCL CONCN. (0.5M), K INCREASES FROM 1.84 TIMES 10 PRIME NEGATIVE7 TO 1.6 TIMES 10 PRIME NEGATIVE4 SEC PRIME NEGATIVE1 (AND T ONE HALF DECREASES FROM 1040 TO 1.2 HR) WHEN THE LICL CONCN. IN THE SOLN. IS INCREASED FROM 0 TO 9.5M. A 10DEGREE INCREASE IN THE TEMP. INCREASES THE VALUE OF K BY A FACTOR OF 2 AND 1.7 IN 0.5 AND 6.0M HCL SOLNS., RESP.; THE CALCD. ACTIVATION ENERGIES FOR THE SPONTANEOUS OXIDN. IN 0.5 AND 6.0M HCL ARE 13 AND 9.9 KCAL-MOLE, RESP.

UNCLASSIFIED

USSR

UDC 621.791.793.011

SEMENOV, V. M., Engineer, Novokramatorskiy Machine Building Plant imeni V. I. Lenin, and GEL'MAN, A. S., Doctor of Technical Sciences, and RYMKEVICH, A. I., Candidate of Technical Sciences, Central Scientific Research Institute of Heavy Machine Building

"Temperature Interval of Metal Brittleness During Electroslag Welding"

Moscow, Svarochnoye Proizvodstvo, No 10, 1973, pp 10-11

Abstract: The temperature interval of brittleness and area of hot crack nucleation during electroslag welding were studied to investigate the process of hot crack formation and to develop measures of preventing them. Tests were made with steel St3 using welding wires Sv-10G2 and 08KhN2M and flux AN-348. It was found that the surface temperature of the slag bath was almost 1400°C and rises to 1600°C and higher during the welding process. To determine the critical time interval during which the temperature interval of brittleness exists, plates measuring 20 x 80 x 150 mm were electroslag welded up to the instant when the surface of the metal bath reached the top edge of the plates. This moment was fixed by an electric sensor which is short circuited and automatically stops the welding process and, within specified time intervals (10, 20, 30, 40 and 50 sec), the seam deformation mechanism is switched on with

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SEMENOV, V. M., et al., Svarochnoye Proizvodstvo, No 10, 1973, pp 10-11

certain force from which the time interval for minimum rate of seam deformation leading to crack formation can be determined. Hot cracks develop after 20 seconds with the largest cracks appearing after 30-40 seconds. The area of crack nucleation was found to be the crystallization front. 4 figures, 2 bibliographic references.

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Acc. Nr: AA0101005 — GELMAN A.S. Ref. Code:
Abstracting Service: 3-70 UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent,

244816 HYDRAULIC SHOCK ABSORBER reduces to the minimum transmission of vibrations from the machine to the foundations and mintains vibrations of the machine at a predetermined level. When the source of vibration 1 moves up, weight 5 of the hydraulic stabiliser is not affected but spring-loaded (7) bellows 6 are compressed pushing some of the liquid into the control bellows 9. The bellows 9 expand and a cover 10 closes a nozzle 12. This prevents reduction of pressure in the support cylinder 14. To maintain the source 1 at a certain level in relation to piston 15, the assembly is fitted with additional bellows 20 connected to a rod 19. The rod 19 is secured to a base plate 18 which in turn rests on a spring amortizator 3. When the cylinder 14 moves down in relation to its piston, the bellows 20 are compressed and discharged liquid expandsbellows 6 and 9. The lever 10 moves down to the nozzle and the pressure in the cylinder 14 increases thus producing additional force required to return the cylinder to the original position. The power pack 4 provides liquid pressure in the stabiliser.

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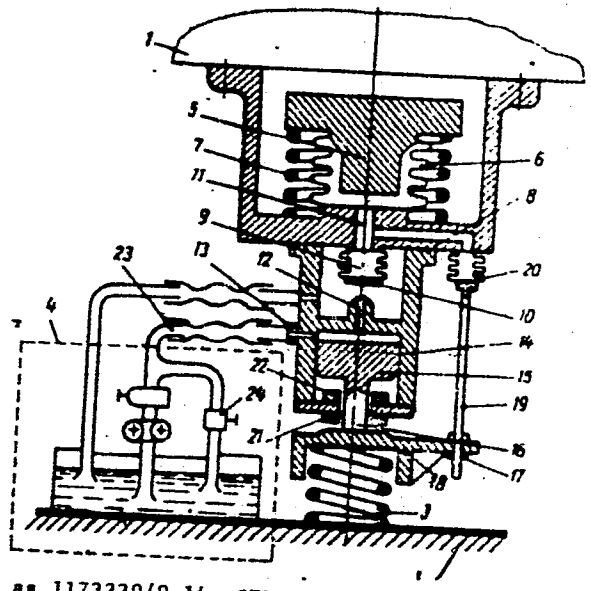

7.7.67. as 1173339/9-14, GELMAN, A.S. (9.10.69) Bul. 18/28.5.69. Class 47a, Int. Cl. F 06f.

19850556

CK

1/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--HEPTAVALENT STATE OF THE TRANSURANIUM ELEMENTS. IX. NEW NEPTUNIUM VII COMPOUNDS -U-
AUTHOR-(03)-MEFODYEVA, M.P., KROT, N.N., GELMAN, I.A.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(2), 232-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NEPTUNIUM COMPOUND, COBALT COMPLEX, COMPLEX COMPOUND, STABILITY CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1228 STEP NO--UR/0186/70/012/002/0232/0237

CIRC ACCESSION NO--AP0128644

UNCLASSIFIED

2/2 006 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0128644

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NEW CRYST. COMPD. OF NP(VII) OF COMPN. (CO(EN) SUB3) NPO SUB5. EH SUB2 O HAS BEEN ISOLATED. IT IS SOL. IN ALKALI AND WHEN STORED IN A DRY STATE IT GRADUALLY DECOMPS. WITH THE TRANSITION OF NP TO A HEXAVALENT STATE. A SPECTROPHOTOMETRIC STUDY OF COMPLEX FORMATION OF NPO SUB2 PRIME3 POSITIVE IN HCL SOLNS. WITH SULFATE IONS SHOWS THAT AT LESS THAN OR EQUAL TO 7 TIMES 10 PRIME NEGATIVE2 M NA SUB2 SO SUB4 AND MU EQUALS 1.0, THE COMPLEXES (NPO SUB2 SO SUB4) PRIME POSITIVE AND (NPO SUB2 (SO SUB4) SUB2) PRIME NEGATIVE ARE FORMED WITH STABILITY CONSTS. OF 1.6 TIMES 10 PRIME2 AND 1.1 TIMES 10 PRIME4, RESP. CONDITIONS ARE GIVEN AT WHICH NPO SUB2 PRIME3POSITIVE FORMS PPTS. WITH PHOSPHATE AND PERIODATE IONS.

UNCLASSIFIED

1/2 028 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--QUANTITATIVE ANALYSIS OF ORGANOMETALLIC COMPOUNDS. MICRODETERMINATION OF ARSENIC BY COMBUSTION IN AN OXYGEN FILLED FLASK

AUTHOR-(03)-SHANINA, T.M., GELMAN, N.F., MIKHAYLOVSKAYA, V.S.

COUNTRY OF INFO--USSR

SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 358-61

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--QUANTITATIVE ANALYSIS, ARSENIC, ORGANOMETALLIC COMPOUND, SPECTROPHOTOMETRIC ANALYSIS, ORGANIC ARSENIC COMPOUND, COMBUSTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0675 STEP NO--UR/0075/70/025/002/0358/0361

CIRC ACCESSION NO--AP0113546

UNCLASSIFIED

2/2 028 UNCLASSIFIED

CIRC ACCESSION NO--AP0113546 PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A MICROMETHOD WAS DEVELOPED FOR AS DETN. IN ORG. AS COMPDS. BY COMBUSTION OF THE SAMPLE IN A FLASK FILLED WITH O AND SPECTROPHOTOMETRIC DETN. OF AS AS ITS BLUE MOLYBDOARSENATE COMPLEX. HYDRAZINE SULFATE IS USED AS THE REDUCING AGENT. THE ABSORBANCE OF THE COMPLEXES IS STABLE IN 0.33-0.56N ACID SOLNS. AND DOES NOT DEPEND ON REAGENT CONCNS. THE COLOR IS DEVELOPED 5-10 MIN AFTER BOILING ON A WATER BATH. ITS. MAX. ABSORBANCE OCCURS IN THE 850 NM RANGE. BEER'S LAW IS OBEYED UP TO 4 MUG AS PER ML. SI AND GE DO NOT INTERFERE. COMBUST 3-8 MG OF THE SAMPLE IN A FLASK FILLED WITH O, ABSORB THE PRODUCTS IN A MIXT. OF 10 ML N H SUB2 SO SUB4 AND 1.5-2 ML 0.05N KMNO SUB4. REDUCE THE KMNO SUB4 EXCESS WITH 1PERCENT HYDRAZINE SULFATE AND DIL. TO 100 ML WITH H SUB2 O. NEUTRALIZE AN ALIQUOT CONTG. 5-20 MUG AS WITH A SATD. NA SUB2 CO SUB3 SOLN. BY USING PHENOLPHTHALEIN AS INDICATOR, ADD 6 ML 2N H SUB2 SO SUB4, 4 ML 1PERCENT AMMONIUM MOLYBDATE IN 2N H SUB2 SO SUB4, AND 2 ML 0.15PERCENT HYDRAZINE SULFATE, AND DIL. TO 50 ML WITH H SUB2 O. HEAT FOR 5 MIN, COOL, AND DIL. TO VOL. WITH H SUB2 O. DET. THE ABSORBANCE AT 850 NM. THE STD. DEVIATION IS 0.12PERCENT ABS. FACILITY: INST. HETEROORG. COMPD., MOSCOW, USSR.

UNCLASSIFIED

E. Mathematical Modeling of Thought Processes

USSR

GEL'MAN, O. Ya., LAVRENCHUK, N. B.,

"The Problem of Construction of a Theory of Cognitive Activity"

K voprosu o postroyenii teorii poznavatel'noy deyatel'nosti [English version above], Institute of Cybernetics Academy of Sciences Georgian SSR, Tbilisi, 1972, 16 pages (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V680 DEP)

Translation: A number of fundamental problems of modern science and technology require rather well developed and precise conceptions of the structure and functions of cognitive activities (CA), its regularities and origin, etc., i.e., the results of a certain theory of CA (TCA) are needed.

A program for the construction of such a theory is the subject of this work. Based on concepts developed in an article by O. Ya. Gel'man, N. B. Lavrenchuk, "Systems Analysis of Scientific Theory as a Certain Functional Structure" (on deposit at VINITI, No 2804-71), the authors formulate three principles determining the structure, subject and models of a TCA. They are

USSR

GEL'MAN, O. Ya., LAVRENCHUK, N. B., K voprosu o postroyenii teorii poznavtel'noy deyatel'nosti, 1972, 16 pages

used as the basis for study of the specifics of various TCA subsystems and a rough outline is drawn for a future TCA, which may provide a rational basis for integration and coordination of various CA studies, thus facilitating their further development.

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USSR

UDC [537.226+537.311.33].01

GEL'MONT, B. L., and YASSIYEVICH, I. N.

"Interaction of Hot Electrons With Optical Phonons"

V sb. Materialy 6-y Zimney shkoly po teorii yadra i fiz. vysok. energiy, 1971, Ch. 3 (Materials of Sixth Winter School on Nuclear Theory and High-Energy Physics, 1971, Part 3 -- Collection of Works), Leningrad, 1971, pp 55-64 (from RZh-Fizika, No 1, Jan 72, Abstract No 1YE1033)

Translation: Optical phonons are described by means of a phenomenological model which takes into consideration electric field influence on ion displacement. The probabilities of electron transitions (with phonon absorption or emission) are calculated, and these are used to record electron relaxation time (e.g., for an electron thrown high into the conduction band). The authors also calculate the per-unit volume power loss of electrons in a certain steady-state distribution.

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USSR

UDC 621.315.592

GEL'MONT, B. L., D'YAKONOV, M. I.

"Acceptor Levels in a Semiconductor with Diamond Structure"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 5, No 11, 1971, pp 2191-2193

Abstract: Results are presented from a numerical calculation of the energy of the basic acceptor level as a function of the ratio of masses of light and heavy holes. The calculation was performed for the case of small acceptor levels the energies of which are small by comparison with the width of the forbidden zone and the magnitude of the spin-orbit splitting. For any ratio of the masses of the light and heavy holes, the energy of the ground state is on the order of the Bohr energy of the heavy hole.

In a recent paper [N. O. Lipari, et al., Phys. Rev. Lett., No 25, 1660, 1970] the energy of the ground state was determined from the same set of equations derived here using the variation method. However, the limiting value of the ground state energy for $(m_e/m_h) \to 0$ [m_e and m_h are the masses of the light and heavy holes, respectively] was not calculated, and it was not shown that this energy is on the order of the Bohr energy of the heavy hole. The results obtained in the present paper permit calculation of the ground state

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USSR

GEL'MONT, B. L., et al., Fizika i Tekhnika Poluprovodnikov, Vol 5, No 11, 1971, pp 2191-2193

energy of the acceptor if the zonal parameters γ_1 and γ introduced by Luttinger [Phys. Rev., No 102, 1030, 1956] are known.

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USSR

UDC 621.382.2

GEL'MONT, B. L., SHUR, M. S., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Current Stringing in Heavily Doped Gunn Diodes"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 9, Sep 70, pp 1650-1655

Abstract: The authors give the following explanation for the mechanism of current stringing in heavily doped Gunn diodes in which zone-zone breakdown takes place. A specimen is assumed to be in the mode of direct current corresponding to a segment with negative differential conductivity. It is further assumed that the concentration of nonequilibrium carriers has increased in some region as a result of fluctuation. The rate of electron-hole pair generation will increase exponentially in this region. In the segment with negative differential conductivity, this increase will exceed the corresponding increase in recombination. Fluctuation will begin to be intensified, but at high concentrations the increase in fluctuation will be limited by diffusion, resulting in the development of a stationary string (layer) of strong current, i.e., a string (layer) with a high concentration of carriers. The string will be flat in the case of a specimen in the form of a thin plate. Equations are derived for determining the conditions of

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USSR

GEL'MONT, B. L., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 9, Sep 70, pp 1650-1655

development of instabilities leading to current stringing. It is shown that an S-shaped voltage-current characteristic leads to current stringing, and equations are given for determining the dimensions of the current string of a Gunn diode with such a characteristic. It is found that the size of the string is determined by the "recombination" length and the applied field (as the field is increased, the string broadens and its amplitude decreases). Stringing disappears when the recombination length is comparable with the dimensions of the specimen. It is shown that hysteresis exists between the threshold currents for generation and quenching of current strings. Experimental data are given on current stringing in GaAs, CdTe and InP Gun diodes. It is concluded that current stringing is explained by the relationship between domain amplitude and concentration.

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USSR

UDC 621.382.2

GEL'MONT, B. L., SHUR, M. S., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences of the USSR, Leningrad

"Motion of a Current String in a Magnetic Field Under Gunn Effect Conditions"

Leningrad, Fizika i Tekhnika Poluprovodnikov, Vol 4, No 9, Sep 70, pp 1795-1797

Abstract: It is shown that the nature of the current stringing instability in heavily doped Gunn diodes located in an external transverse magnetic field should change from absolute to convective. The motion of the string is perpendicular to the magnetic field. What happens to the string after this depends on the relationship between the rate of surface recombination and the drift velocity of the string. If the drift velocity is greater than the rate of recombination, the accumulation of carriers at one of the walls due to drift in the magnetic field will exceed the decrease due to recombination. In this case the string will arise in direct proximity to the wall, or will remain near the wall after drifting if the magnetic field is actuated after formation of the string. If the drift velocity is less than the rate of recombination, the reuniting of the carriers near the wall will exceed the accumulation due to drift. If the surface recombination is fairly high,

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APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R002200910011-5"

USSR

GEL'MONT, B. L., et al., Fizika i Tekhnika Poluprovodnikov, Vol 4, No 9, Sep 70, pp 1795-1797

this may lead to disappearance of the string close to the wall. A new string will then arise in the center of the specimen and the cycle will be repeated. This causes oscillation of the voltage in the external circuit. String oscillations take place at a frequency considerably lower than the frequency of Gunn oscillations. The voltage oscillations in the external circuit may be used to modulate the Gunn oscillations.

1/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--MAGNETIC SUSCEPTIBILITY OF HOLES IN MERCURY TELLURIDE, INDIUM ANTIMONIDE, AND GERMANIUM -U-

AUTHOR-(04)-KOLOMYETS, B.T., GELMONT, B.L., IVANOVOMSKIY, V.I., MELNIK, V.M.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 299-304

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--MAGNETIC SUSCEPTIBILITY, MERCURY COMPOUND, TELLURIDE, INDIUM ANTINOMIDE, GERMANIUM, HALL CONSTANT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0938 STEP NO--UR/0449/70/004/002/0299/0304

CIRC ACCESSION NO--AP0116447

UNCLASSIFIED

2/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116447

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MAGNETIC SUSCEPTIBILITY (X) MEASUREMENTS OF P TYPE HGTE, INSB, AND GE WERE CARRIED OUT IN A WIDE RANGE OF TEMP. AND CARRIER D. TO DET. THE CONTRIBUTION OF LIGHT AND HEAVY HOLES. AN EXPLICIT EXPRESSION FOR X OF ELECTRONS IN A WEAK MAGNETIC FIELD IS DERIVED AS A FUNCTION OF FERMI ENERGY IN THE CASE OF INSB. A SIMILAR EXPRESSION WHERE ONLY S P INTERACTION IS ACCOUNTED FOR IS ALSO PRESENTED. THE SAME EXPRESSIONS ARE VALID ALSO FOR HGTE, TAKING INTO ACCOUNT THAT E SUBG IS SMALLER THAN 0. CARRIER DS. WERE DETD. FROM HALL COEFF. MEASUREMENTS AT 4.2DEGREESK, WHERE THE EFFECT OF THE MAGNETIC FIELD IS NEGLIGIBLE. FROM 4.2 TO SIMILAR TO 77DEGREESK, X OF P HGTE IS ALMOST INDEPENDENT OF TEMP. AND FROM 77 TO IS SIMILAR TO 290DEGREESK IT RISES STEEPLY WITH TEMP. THE INCREASE OF HOLE CONCN. LEADS TO A DECREASE OF X, IMPLYING THAT HOLES IN P HGTE ARE DIAMAGNETIC. THE TEMP. DEPENDENCE OF X OF P INSB IS SIMILAR EXCEPT FOR THE SAMPLE WITH N SUBP EQUALS 5 TIMES 10 PRIME13-CM PRIME3, WHERE X DECLINES WITH INCREASING TEMP. THIS IS ASSOCD. WITH THE INCREASE OF ELECTRON D. IN THE REGION OF MIXED COND. THE EXPTL. CARRIER D. DEPENDENCE OF X IN P HGTE IS A MONOTONICALLY DECAYING CURVE WHICH IS CLOSE TO THE THEORETICALLY CALCD. EXCEPT FOR THE LOWEST HOLE CONCN. SAMPLES, WHERE THE PARAMAGNETIC CONTRIBUTION HAS TO BE ACCOUNTED FOR AT GREATER THAN 4.2DEGREESK. THE CONCN. DEPENDENCE OF X OF P INSB IS NONMONOTONIC AND SHOWS THAT THIS SEMICONDUCTOR IS PARAMAGNETIC AT 3 TIMES 10 PRIME16 MINUS 6 TIMES 10 PRIME18-CM PRIME3, DIAMAGNETIC AT 6 TIMES 10 PRIME18 MINUS 3.5 TIMES 10 PRIME19-CM PRIME3, AND AGAIN PARAMAGNETIC AT 3.5 TIMES 10 PRIME19-CM PRIME3.

UNCLASSIFIED

3/3 016 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0116447
ABSTRACT/EXTRACT--THE WAVE VECTOR DEPENDENCE OF LIGHT CARRIER ENERGY IS. NONPARABOLIC BECAUSE OF STRONG S P INTERACTION. THE PARAMAGNETIC CHARACTER OF N HGTE AND P INSB IMPLIES THAT OTHER BANDS BESIDES S P INTERACTION ARE INVOLVED. THE EFFECT OF CRIMPING OF THE ISOENERGETIC SURFACE OF HEAVY HOLES ON THEIR X IS CONSIDERABLE FOR GE, BUT IS INSIGNIFICANT WITH P HGTE AND P INSB. FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

USSR UDC: 621.396.622.3

GELOZHE, Yu. A., YEVDOKIMOV, Yu. F.

"Singularities in the Design of Digital Frequency Synthesizers"

V sb. Materialy Nauchno-tekhn. konferentsii prof.-prepodavat. sostava Khar'kov. in-ta radioelektron. (Materials of the Scientific and Technical Conference of the Professional and Teaching Staff of the Khar'kov Institute of Radio Electronics), Khar'kov, Khar'kov University, pp 80-83 (from RZh--Radiotekhnika, No 12, Dec 70, Abstract No 12D45)

Translation: The paper deals with questions of the effect which individual modules and elements of a digital frequency synthesizer have on synthesizer characteristics, as well as problems of breaking the frequency range of the synthesizer down into subranges, and selecting the comparison frequency and type of phase detector. Bibliography of two titles. N. S.

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Instruments and Equipment

USSR UDC 615.849.-72:621.375.9

GEL'PERIN, B. B.

"New Betatron for Medical Purposes"

Moscow, Meditsinskaya Radiologiya, Vol 15, No 5, May 70, pp 46-48

Abstract: The construction of a betatron, the mechanism of electron acceleration, and the possible utilization of betations in medicine are discussed. The B5M-25 betatron, developed in 1968 at the Moscow Electromechanical Plant primarily for medical purposes is described. The nominal energy of this accelerator is 25 Mev, with possible regulation down to 10 or even 7 Mev. It is used at a distance of 1 meter. Dosage is specified when the instrument is ordered. The B5M-25 is air cooled, and the air in the treatment room is blown out to remove contamination. The device is equipped with an extra accelerating tube and filters which can be manipulated manually or automatically. It is well collimated, measures distance, and shows the site of action by crosshairs. The dosimetric apparatus shuts off the device when the prescribed dose has been administered. The B5M-25 satisfies all medical and technical requirements, as well as those for patient comfort.

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1/2 027 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--HEAT TRANSFER DURING THE BOILING OF NORMAL ALKANES IN THE VERTICAL HEATING TUBE OF A EVAPORATOR WITH NATURAL CIRCULATION -U-

AUTHOR--GELPERIN, N.I., SOLOPENKOV, K.N., UZUNOV, A.KH.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(1) 44-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HEAT TRANSFER, HEPTANE, OCTANE, DECANE, EVAPORATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0191 STEP NO--UR/0064/70/046/001/0044/0047

CIRC ACCESSION NO--AP0106847

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0106847

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EMPIRICAL EQUATION FOR THE HEAT TRANSFER COEFF., ALPHA, IN THE BOILING OF ETA,HEPTANE, ETA,DECANE IN A VERTICAL TUBE UNDER ATM. PRESSURE IS PROPOSED: ALPHA EQUALS 13.9(R PRIME-R) PRIME 0.47 Q PRIME0.62, WHERE R PRIME AND R ARE THE SO CALLED REOCHORS (FRIEND (1942)) FOR H SUB2 O AND FOR THE ALKANE, RESP., AND Q IS THE THERMAL LOAD AT THE TUBE WALL. FOR THE ABOVE ALKANES AT Q BETWEEN 14000 AND 35000 KCAL-M PRIME2 HR, THE VALUES OF ALPHA (FOR A CU TUBE) RANGED FROM 2000 TO SIMILAR TO 4000 KCAL-M PRIME2 HR.

UNCLASSIFIED

AA0040732

--- UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

235961 GRANULAR RESIN S EPARATION from emulsion is ensured by mixing the cooling agent with the hot emulsion directing the former at an angle to the flow. The feed should maintain a temp of 20-40°C at the end of the mixing process. 16.12.66. as 1119962/23-5, GEL'PERIN, N.I. et al. (13.6.69) Bul. 6/24.1.69. Class 39a[1], 39b, Int. Cl B 29b, C 08g.

AUTHORS: Gel'perin, N. I.; Tumanskiy, A. S.; Agranenko, S. A.; and Grigorchuk, G. N.

19750389

1/2 007 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--CONTINUOUS EXTRACTION OF STREPTOMYCIN IN A MULTISECTION COLUMN WITH A FLUIDIZED BED OF ION EXCHANGER -U-

AUTHOR-(03)-GELPERIN, N.I., KLYUYEVA, L.M., STREMOVSKIY, L.L.

COUNTRY OF INFO--USSR

SOURCE--KHIM. FARM. ZH. 1970, 4(2), 23-6

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STREPTOMYCIN, FLUIDIZED BED, ION EXCHANGER/(U)KB2 CATION EXCHANGER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0326 STEP NO--UR/0450/70/004/002/0023/0026

CIRC ACCESSION NO--AP0113252

UNCLASSIFIED

2/2 007 UNCLASSIFIED

CIRC ACCESSION NO--AP0113252 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. WERE CARRIED OUT USING KB-2 CATION EXCHANGER (NA PRIME POSITIVE FORM), STREPTOMYCIN (I) SOLNS. OF THE ACTIVITY RANGE 4000-6500 IU-ML, AND FEEDING RANGE OF I SOLN. 114-410 ML-HR-CM PRIME2. THE OPTIMUM CONDITIONS FOR A CONTINUOUS EXTN. OF I USING A LAB. COLUMN (40 MM IN DIAM.) AND A COUNTERCURRENT INTERACTION OF PHASES WERE AS FOLLOWA: FEEDING RATE 220-40 ML-HR-CM PRIME2, EXPENSE OF FRESH EXHANGER 10-12 G-HR, GRAIN SIZE OF THE EXCHANGER 0.5-0.75 MM, 12 SECTIONS OF THE COLUMN CHARGED WITH THE EXCHANGER, INITIAL CONCN. OF I SOLN. 5000-6000 IU-ML. THE ADVANTAGES OF THE PROCESS ARE THE USE OF 1 COLUMN, REDN. OF THE RESIDENCE TIME OF I IN THE SORBED STATE, HIGH YIELD (SMALLER THAN 97PERCENT) AT THE SATN. OF SIMILAR TO 800,000 IU-G, CONST. CONCNS. OF I IN THE PHASES FED, AND POSSIBILITY OF AUTOMATION OF THE PROCESS. FACILITY: VSES. NAUCH.-ISSLED. INST. ANTIBIOT., MOSCOW, USSR.

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118481

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A NOMOGRAPH FOR THE DETN. OF THE HEAT TRANSFER COEFF. ALPHA BETWEEN THE SURFACE AND A FLUIDIZED BED, AS A FUNCTION OF THE GAS VELOCITY W WAS PLOTTED BASED ON THE EQUATION OF GEL'PERIN, ET AL. (1966); IN THE CASE OF A BED OF QUARTZ PARTICLES 0.35 MM IN DIAM., THE MAX. ALPHA 267 CKAL-M PRIME2 HR DEGREE WAS OBTAINED AT W EQUALS 0.455 M-SEC.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--HEAT TRANSFER DURING THE BOILING OF SATURATED HYDROCARBONS IN A THERMOSIPHON VAPORIZER -U-

AUTHOR-(03)-GELPERIN, N.I., SOLOPENKOV, K.N., UZUNOV, A.KH.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(2), 234

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--HEAT TRANSFER, BOILING, SATURATED HYDROCARBON, VAPORIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1582 STEP NO--UR/0063/70/015/002/0234/0234

CIRC ACCESSION NO--AP0128972

UNCLASSIFIED

2/2 032 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0128972

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM AN EXPTL. STUDY OF HEAT TRANSFER IN A THERMOSYPHON VAPORIZER WITH 50, 70, AND 90PERCENT DYNAMIC LIQ. LEVEL IN THE VERTICAL PIPE OVER A RANGE OF THERMAL LOADINGS IN THE SINGLE TUBE CLOSED CIRCUIT CU PIPE CAPABLE OF VARIOUS REGIMES OF CIRCULATORY MOTION, IT WAS SHOWN THAT THE HEAT TRANSFER RATE WAS INDEPENDENT OF THE CIRCULATION RATE OR THE VAPOR CONTENT IN THE STREAM. THE RELATION: ALPHA EQUAL 13.9 PHI Q PRIMEO.62, WHERE PHI IS THE COEFF. OF LOWERING OF THE HEAT TRANSFER RATE IN TRANSITION FROM BOILING H SUB2 O TO BOILING HYDROCARBON, ALPHA IS THE AV. HEAT TRANSFER COEFF. AND Q IS THE SP. HEAT FLUX OF THE HEATING SURFACE. THE VALUE OF PHI IS ALSO EXPRESSED AS: PHI EQUALS (M SUBW-M SUBH) PRIMEO.56, WHERE M SUBW AND M SUBH ARE MOL. WTS. OF H SUB2 O AND THE HYDROCARBON USED, RESP.; THE 0.56 EXPONENT APPEARS CHARACTERISTIC OF ALIPHATIC HYDROCHARBONS OF NORMAL STRUCTURE (E.G., HEPTANE, OCTANE, DECANE) WHICH ARE LIQ. AT NORMAL TEMP. AND PRESSURES. FACILITY: MOSK. INST. TONKOI KHIM. TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DISCHARGE OF GRANULAR MATERIAL SOLIDS FROM A FLUIDIZED BED -U-

AUTHOR-(03)-GELPERIN, N.I., AINSHTEYN, V.G., LAPSHENKOV, G.I.

COUNTRY OF INFO--USSR

SOURCE--KHIM. TEKHNOL. TOPL. MASEL 1970, 15(2), 39-41

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLUIDIZED BED, BERNOULLI EQUATION, LIQUID DROP MODEL, MATHEMATIC MODEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0930 STEP NO--UR/0065/70/015/002/0039/0041

CIRC ACCESSION NO--AP0107459
UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0107459

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LITERATURE AND AUTHOR GENERATED TITLE DATA ARE COMPARED AND EVALUATED TO DET. WHAT FACTORS CONTROL THE PROCESS. THE VALUE OF THE EXPONENT (N) IN THE RELATION G SUBT SIMILAR TO DELTA P PRIMEN, WHERE G SUBT EQUALS PARTICLE DISCHARGE RATE AND DELTA P EQUAL PRESSURE DROP ACROSS PARTICLE LAYER ABOVE THE FLUIDIZING HOLE, COMMONLY GIVEN AS N EQUALS 0.5 OR 0.6 WAS EXAMD.; N EQUALS 0.5 AND N EQUALS 1.5 WERE EQUALLY VALID AT FLUIDIZATION (W) NOS. APPROXIMATELY 0.5 AND 0.8-1.6, RESP. AN EQUATION A WAS DEVELOPED WHICH RELATES D SUBO-D SUBEPSILON TO A WHERE D SUBO EQUALS HOLE DIAM. FOR FLUIDIZED PARTICLE PASSAGE, D SUBEPSILON EQUALS PARTICLE EQUIV. DIAM., AND A IS A DIMENSIONAL CONST. OF SEVERAL VARIABLES. RESULTS OF A VS. D SUBO-D SUBEPSILON ARE COMPARED FOR D SUBEPSILON EQUALS 0.15-0.80 MM; THESE SHOW THAT A IS DIRECTLY PROPORTIONAL TO, MU SUBP, THE EFFECTIVE DISHCARGE COEFF. IN THE G SUBT EQUATION DEVELOPED ON THE BASIS OF A LIQ. DROP MODEL. THE RESULTS ALSO CONFIRM THE VALIDITY OF THE BERNOULLI PRINCIPLE IN DETG. T SUBT WHICH CONTRADICTS THE L. MASSIMILLA (1961) FINDINGS.

UNCLASSIFIED

Acc. Nr: AP0047204 Ref. Code: UR0504

PRIMARY SOURCE: Terapevticheskiy Arkhiv, 1970, Vol 42, Nr 1, pp 49-54

CRITERIA OF PULMONARY HEART IN ELECTROKYMOGRAPHIC INVESTIGATION

Orlov, V. N.; Gel shteyn, V. E.

Summary

The authors conducted electrokymographic investigation in 85 patients with pulmonary emphysema and diffuse pneumosclerosis. A detailed analysis of the electrokymographic curves and comparison of the data obtained with the results of clinical investigation allowed the authors to elaborate their own classification of changes in pulmonary heart, to single out significant signs of pulmonary hypertension and the ones requiring confirmation. It was shown that the main role in the detection of affections of pulmonary circulation was played by the analysis of the curves of the pulmonary circulation, the right atrium and the right ventricle. To significant signs of pulmonary hypertension there maybe referred. 1) displacement of the dicrotic wave into the upper fourth of the descending limb of the curve, 2) bi-and tri-epical EKI of the pulmonary artery, stipulated by the increase of a dicrotic wave and isometric

AP0047204

knotch, 3) slanting down to the horizontal, a run of EKI in the diastole following the dicrotic wave. The symptoms of pulmonary hypertension on the EKI of the right atrium are in the author's opinion, a considerable increase of the drop amplitude during the systole of the atrium, as well as the appearance of the diastolic plateau.

Moreover, there are seen signs testifying to the intensification or wersening of the contractile activity of the right ventricle, the presence of sclerosis and the pulmonary artery.

2/2

19790705

USSR UDC 613.644:[612.82+612.85]-053.6

GEL'TISHCHEVA, Ye. A., Institute of Hygiene imeni F. F. Erisman, Moscow

"The Effect of Industrial Noise With Different Parameters on the Acoustic Analysor and Central Nervous System of Adolescent Workers"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 7, 1973, pp 5-9

Abstract: Effects of standard noise level for adults (PS-80), above-standard noise level for adults (PS-85), and standard level for adolescents (PS-65) on the acoustic analysor and CNS functions were studied on 56 adolescents working full time at a machine building plant. About 200 audiograms recorded prior to the noon break and after work over a 1-5 day period were processed statistically. Reduced hearing was evident in all cases, particularly at higher frequences (4,000 and 8,000 Hz), though the drop was less pronounced in the PS-65 group. Hearing was not restored in the PS-80 and PS-85 groups after a 16-hour rest break or even after 2 days off, indicating that industrial noise has a cumulative effect on hearing. Among some noise-sensitive individuals hearing does not improve after 2-4 weeks leave. Motor reactions to light and acoustic stimuli were characterized by longer latent response time than normal, particularly in PS-85 and PS-80 groups. Thus all noise levels worsen hearing and inhibit CNS functions among adolescents. This situation is particularly dangerous to adolescent development.

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USSR UDC: 632.95.024.1:(575.4)

GEL'TSER, Yu. G., GEPTNER, V. A., STONOV, L. D.

"Concerning the Effect of Herbicides on the Microorganisms of Mud and Water in the Collecting Basins of the Chardzhou Oasis in the Turkmen SSR"

Moscow, Agrokhimiya, No 6, Jun 72, pp 119-123

Abstract: The article is a report on a study done in 1968-1969 to determine the effectiveness of herbicides against microorganisms in the water and bottom silt of collecting basins in the Chardzhou oasis of the Turkmen SSR. Diurone and Monurone herbicides were studied. It was found that the herbicides differ in their effect on different physiological groups of microorganisms: in some instances the herbicide suppressed growth and development of microbes (actinomycetes and cellulose-disintegrating microbes), in other cases no appreciable effect on the numbers of the microbes was observed (spore microbes). Diurone showed the greatest bactericidal effect in the first few days after application, followed by an increase in the numbers of bacteria. Experiments in vitro showed that a 10% solution of Diurone is most lethal for the microorganisms; a 0.5% solution had no suppressive effect on the bacteria (with the exception of Pseudomonas and Azotobacter).

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USSR UDC 669.24:539.261

BEKRENEV, A. N., GELUNOVA, Z. M., and GERASIMENKO, L. I., Petrozavodsk State University imeni O. V. Kuusinen; Volgograd Polytechnical Institute

"Study of the Substructure of Nickel After Explosive Loading"

Moscow, Fizika Metallov i Metallovedeniye, Vol 30, No 5, 1970, pp 1003-1006

Abstract: X-ray techniques were used to study the mosaic structure of nickel foil loaded with planar shock waves at pressures of 60 and 165 Kbar. Disorientation of sections of the mosaic and their dimensions were determined, as well as the microdistortions of the crystalline lattice at these pressures and various shock wave durations. A correlation was established between the development of the substructure and the level of hardening achieved. The nature of the mosaic structure of nickel grains following explosive loading was determined by the pressure of the shock wave. The duration of the shock impact had an influence only at 265 Kbar. Microdistortion and fragmentation of mosaic sections was found to be significant in the creation of the substructure of the explosively loaded nickel foil. The increase in density of dislocations in the foil occurs primarily as a result of dislocations arising at the shock wave front.

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USSR

UDC 669.15:539.89

GELUNOVA, Z. M., PASHKOV, P. O., and CHEPRASOV, D. P., Volgograd Polytechnic Institute

"Change in the Properties and Structure of Steel 2Kh15N5AM3 After Severe Impact"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 370-374

Abstract: Previously hardened sheet samples of 2Kh15N5AM3 steel measuring 100 x 150 mm were subjected to impact loading from a plane wave, created by detonating a charge over the sample secured in a sealed tub of liquid nitrogen, in an interval of pressures of 200-500 kbar and to a sliding load with a pressure of almost 140 kbar from the frontal wave. Prior to testing, the samples had an austenite structure with 25-27% martensite. The process of testing samples subjected to sliding impact load consisted of aging the hardened samples at 400°C for four hours, cooling in liquid nitrogen, aging again, impacting at room temperature from the 140 kbar load, aging, cooling in liquid nitrogen, and again impacting at room temperature (140 kbar), aging, cooling as before and impacting (140 kbar) at liquid nitrogen temperature, and aging. Mechanical properties were measured after each step in the process,

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USSR

GELUNOVA, Z. M., et al, Fizika Metallov i Metallovedeniye, Vol 35, No 2, Feb 73, pp 370-374

from which it was found that strength increases for each step while elasticity and reduction in area jump up and down with the higher values existing after each aging step. Microhardness also increased after each step. The same type of pattern in mechanical properties was found in samples subjected to plane wave impacts although the treatment varied a little. 3 figures, 2 tables, 10 bibliographic references.

USSR

UDC: 621.382.23.011.222

GEL'VICH, E. A., GOLANT, M. B.

"Selection of Continuous-Action Microwave Oscillator Circuits Stabilized by Means of Superhigh-Q Resonators to Ensure Long-Term and Short-Term Frequency Stability"

Elektron. tekhnika. Nauch.-tekhn. sb. Elektron. SVCh (Electronic Technology. Scientific and Technical Collection. SHF Electronics), 1971, vyp. 3, pp 55-62 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D370)

Translation: This paper classifies continuous-action microwave oscillator circuits stabilized by superhigh-Q ($Q \geqslant 10^8$) resonators to ensure high long-term and short-term frequency stability. It is shown that the most effective way to ensure both long-term and short-term frequency stability is to use circuits in which the superhigh-Q stabilizing resonator affects the oscillator frequency exclusively through the microwave circuits. Energy is coupled out directly from the superhigh-Q resonator. Five illustrations, bibliography of eight titles. Resumé.

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USSR

UDC 535.2:665.123

VILENSKAYA, R. L., GEL'VICH, V. A., GOLANT, M. B., and SMOLYANSKAYA, A. Z., Institute of Experimental and Clinical Oncology, Academy of Medical Sciences USSR, and Institute of the Electronic Industry

"Effect of Millimeter Radiation on Colicin Synthesis"

Moscow, Nauchnyye Doklady Vysshey Shkoly, Biologicheskiye Nauki, No 7, 1972, pp 69-71

Abstract: Exposure of the colicinogenic E. coli strain C600(E_1) to wavelengths ranging from 6.5 to 6.59 mm resulted in marked induction of colicin synthesis at 6.500, 6.530, 6.555, and 6.590 mm a lesser effect at 6.535, 6.560, and 6.575 mm, and induction almost indistinguishable from that of the control at 6.510, 6.540, and 6.570 mm. Thus, the relationship between the induction coefficient and wavelength was of a distinct resonance nature. Variation in the irradiation rate from 30 to 0.3 mwt, on the other hand, had almost no effect on the induction coefficient. (The biological effect was sharply decreased only when the irradiation rate was reduced to 0.03 mwt). The lack of relationship between the induction of colicin synthesis and the irradiation rate is cited as evidence for the nonthermal effect of millimeter electromagnetic oscillations.

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I/2 024 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--CHANGES IN LACTATEDEHYDROGENASE AND ITS ISOENZYMES IN CHRONIC PNEUMONIA -U-

AUTHOR--GEMBITSKAYA, T.YE.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 3, PP 46-49

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LACTATE DEHYDROGENASE, PNEUMONIA, ENZYME ACTIVITY, LUNG, HYPOXEMIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1936/0308 STEP NO--UR/0504/70/042/003/0046/0049

CIRC ACCESSION NO--AP0102770

UNCLASSIFIED

2/2 024 UNCLASSIFIED

CIRC ACCESSION NO--AP0102770 PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHEN EXAMINING 50 PATIENTS WITH VARIOUS STAGES OF CHRONIC PNEUMONIA IN THE PHASE OF EXACERBATION CONSTANT RISE OF TOTAL ACTIVITY OF LACTATEDEHYDROGENASE MOSTLY EXPRESSED IN PATIENTS WITH II AND III STAGES OF THE DISEASE WERE NOTED. DURING THE PHASE OF REMISSION THE TOTAL ACTIVITY OF LACTATEDEHYDROGENASE BECAME NORMALIZED IN PATIENTS WITH STAGES I AND II OF CHRONIC PNEUMONIA. CHANGES OF ISOENZYMES IN PATIENTS WITH STAGE I IN THE PHASE OF EXACERBATION WAS STATISTICALLY INSIGNIFICANT, IN STAGE TWO THERE WAS A SIGNIFICANT INCREASE OF LDG SUB3 AND LDG SUB4. IN PATIENTS WITH CHRONIC PNEUMONIA OF THE I STAGE CHANGES IN ISOENZYMES ARE NOT OF A SINGLE TYPE. CHANGES OF LACTATEDEHYDROGENASE AND ITS ISOENZYMES ARE APPERANTLY ASSOCIATED BOTH WITH SEVERITY AND EXTENSIVENESS OF THE PROCESS OCCURRING IN THE LUNGS AND WITH THE CHANGES OF METABOLIC NATURE TO WHICH AN INCREASE IN THE ACTIVITY OF LACTATEDEHYDROGENASE AND ITS SLOWLY MOVING FRACTION DEPENDING UPON THE EXTENT OF HYPOXEMIA TESTIFY.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--FEATURES OF GELATINATION IN POLY(VINYL ALCHOL) -U-

AUTHOR-(04)-GEMBITSKIY, L.S., GUBENKOVA, YE.N., VERKHOTINA, L.N., SPERANSKIY, V.V.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN., SER. A 1970, 12(2) 259-66

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GELATION, POLYVINYL ALCOHOL, GEL, PLASTIC FILM, GLYCEROL, ETHYLENE GLYCOL, CRYSTAL STRUCTURE, X RAY STUDY, THERMOMECHANICAL PROPERTY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1987/1196 STEP NO--UR/0459/70/012/002/0259/0266

CIRC ACCESSION NO--AP0104562

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104562

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEPENDENCE OF STRUCTURAL TRANSITIONS IN POLY(VINYL ALC.) (I) GELS AND FILMS ON TEMP., SOLVENT COMPN., AND CONCN. WAS STUDIED. AQ. I SOLNS. DILD. WITH PPTG. ALCS. GLYCEROL, DIETHYLENE GLYCOL, AND ETHYLENE GLYCOL WERE HETEROGENEOUS, HAVING 0.6-0.8 MU PARTICLES. THE APPARENTLY FIRST ORDER SOLN. GEL TRANSITION WAS ACCOMPANIED BY ABRUPT VOL. CHANGES. THE OCCURRENCE OF CRYSTN. WITH HEATING AT 160-210DEGREES OBSD. BY THERMOMECH. BEHAVIOR AND BIREFRINGENCE, WAS CORROBORATED BY X RAY ANAL. ONE CRYST. STRUCTURE HAVING INTERPLANAR DISTANCE 4.37 ANGSTROM AND 2 THETA EQUALS 20DEGREES WAS DETD. IN I GEL, FILM. AND POWDER. ANOTHER WAS OBSD. ON HEATING I FILM ABOVE THE GLASS TRANSITION.

UNCLASSIFIED

USSR UDC 616.001.27-036.11-02:/617.55+617.582/-001.29

GEMBITSKIY, Ye. V., KOLESNIK, F. A., and VENTSENOSTSEV, B. B., Chair of Military Field Therapy, Military Medical Academy imeni S. M. Kirov

"A Case of Acute Radiation Sickness in Man as a Result of External Gamma-Irradiation. I."

Moscow, Meditsinskaya Radiologiya, Vol 15, No 8, Aug 70, pp 48-54

Abstract: As a result of gross disregard of safety regulations, a healthy male subject 27 yrs of age was exposed to local irradiation with gamma-rays from a Co^{60} source with an activity of 356 mc. The subject, who did not wear protective clothing, removed a Co^{60} ampule from its container, placed it on top of a brick barrier, and lay down on top of the barrier, bringing the ampule into contact with the lower part of his abdomen. He then worked for 30 min in the same position, with the ampule remaining in contact with his body. As a result, he sustained a severe radiation lesion in the left iliac region, which comprised an external radiation burn of the abdomen and injury to the abdominal wall and underlying intestines. Three months after the accident, stenosis of the sigmoid developed, accompanied by intestinal obstruction due to fusion of the sigmoid to the abdominal wall. An operation was conducted in which an artificial outlet to serve as a substitute anus was created. No severe complications followed the

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USSR

GEMBITSKIY, Ye. V., et al, Meditsinskaya Radiologiya, Vol 15, No 8, Aug 70, pp 48-54

operation, but general metabolic and trophic disturbances persisted and healing at the site of local radiation injury proceeded very slowly. The patient was treated with antibiotics and vitamins, was given blood transfusions on the 62nd --66th day of illness, and received intravenous drip infusions of 0.25% novocaine solution to alleviate abdominal pains in the region of the burn. He was also treated with injections of protein hydrolysates. Relationships between local injury and general radiation trauma will be discussed in a future paper.

2/2

USSR

UDC 539.4

GEMINOV, V. N. and BALYBERDIN, V. S., Institute of Metallurgy imeni A. A. Baykov, USSR Academy of Sciences (Moscow, Chelyabinsk)

"Generalization of the Fatigue Equation and its Application to the Analysis of Unsteady Regimes"

Kiev, Problemy Prochnosti, No 11, Nov 73, pp 68-72

Abstract: A mathematical model of the accumulation of injuries, which also takes hardening into account, is developed on the basis of a kinetic equation of the dislocations. A method for the extrapolation of fatigue-test data is proposed, as well as a method for the determination of longevity under unsteady operating conditions. Containing four determining parameters in its complete form, in its simplified version the equation contains three. Statistically processed experimental evidence on the basis of alloys D16T and D16 and steel 3 confirms the fact that the summation of injuries can be conducted in accordance with the simplified version of the formula for low-hardening materials. 4 figures. 2 tables. 3 references.

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USSR UDC 539.4

KOP'YEV, I. M., GEMINOV, V. N., KUDINOV, V. V., GALKIN, YU. A., OVCHINSKIY, A. S., Moscow

"Testing of Composite Materials in Circular Specimens"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 120-122

Abstract: The possibility is demonstrated of using circular specimens for tensile testing of composite materials reinforced with wire (the matrix was pure aluminum and the armature was wire made from EP-322 steel). The peculiarities of the stress and strain states of the specimens are studied. Results of testing of circular and flat specimens are compared. Three figures, four bibliographs references.

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USSR

UDC: 539.385

GEMINOV, V.N., Institute of Metallurgy imeni A.A. Baykov, Academy of Sciences USSR

"Fundamental Regularities Providing the Basis for the Method of Secondary Fatigue Curves"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971, pp 54-60

Translation: A study was made of certain specific features in the method of secondary curves when applied to determining the service life of a metal under unsteady-state loading conditions. The interpretation of secondary fatigue curves derived for conditioned metal in terms of damage accrual and energy storage is analyzed. A relation is shown between the characteristics of variations in the residual working capacity of the metal and the changes in the width of the hysteresis loop. (5 illustrations, 10 bibliographic references; summary).

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USSR UDC: 539.385

GEMINOV, V. N. and KOP'YEV, I. M., Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR

"Study of Fine Wire Fatigue"

Moscow, Sb. "Ustalost' metallov i splavov". "Nauka" Press, 1971, pp 109-111

Translation: A device has been made for fatigue tests using bending with rotation for fine wire with a diameter of the order of tenths of a millimeter. The wire rotated by a motor is force-bent over a specific radius in a fluoroplast block with a circular groove. The tests were conducted on molybdenum wire, 0.12 mm in diameter, under two-stage loading. Curves have been plotted to demonstrate molybdenum sensitivity to changes in loading. (2 illustrations, 2 bibliographic references; summary).

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UDC 669.28:620.178.3

USSR

GEMINOV, V. N., and KOP'YEV, I. M.

"Study of Fatigue of Thin Wires"

V sb. Ustalost' met. i splavov (Alloy and Metal Fatigue -- Collection of Works), Moscow, "Nauka" (Science), 1971, pp 109-111 (from RZh-Metallurgiya, No 1, Jan 72, Abstract No 11778 by authors)

Translation of Abstract: A device has been developed for the rotating-beam fatigue testing of thin wires with a diameter of the order of tenths of a millimeter. The wire, rotated by an electric motor, is force-bent on a given radius in a block made of Teflon with a circular slot. Tests were made of Mo wire 0.12 mm in diameter under a two-stage stress schedule; curves of Mo sensitivity to load variation were plotted. Two illustrations. Bibliography with two titles.

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1/2 012 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--CERTAIN METHODS FOR INTERPRETING HEAT RESISTANCE CHARACTERISTICS

-U-

AUTHOR--GEMINOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, MAR. 1970, P. 24-28

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ALLOY, HEAT RESISTANT METAL/(U)E1572 ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0121 STEP NO--UR/3663/70/002/000/0024/0028

CIRC ACCESSION NO--AP0123893

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 012

CIRC ACCESSION NO--AP0123893

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE ADVANTAGES AND DRAWBACKS OF KOVPAK'S (1969) METHOD FOR ESTIMATING AND EXTRAPOLATING THE HEAT RESISTANCE CHARACTERISTICS. THE APPLICATIONS OF KOVPAK'S METHOD ARE DELINEATED ON THE BASIS OF A COMPARISON OF EXPERIMENTAL RESULTS OBTAINED FOR THE LONG TERM STRENGTH OF THE E1572 ALLOY WITH THOSE OBTAINED BY EXTRAPOLATION ACCORDING TO KVOPAK'S METHOD.

FACILITY: AKADEMIIA NAUK SSSR, INSTITUT METALLURGII, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0038034 Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Éksperimental'noy i Teoreticheskoy Fiziki, 1970, Vol 58, Nr 1, pp 115-123

AN INVESTIGATION OF SUPERMAGNETISM OF FERROMAGNETIC PARTICLES BY MOSSBAUER SPECTROSCOPY

Afanas'yev, A. M.; Suzdalev, I. P.; Gen, M. Ya.; Gol'danskiy, V. I.; Korneyev, V. P.

A theoretical and experimental investigation of supermagnetism of ferromagnetic spherical particles is carried out. It is found that the anisotropy energy (relaxation time) drops to zero for crystals with cubic symmetry at particle dimensions of the order of a certain d_{cr} and then begins to increase with increase of particle size due to turning of the magnetic moments of separate atoms with respect to each other. In is also shown that this phenomenon is not observed in uniaxial crystals. An investigation by Mossbauer spectroscopy of particles of the ferromagnetic alloy FeNi (37% Ni) with a face centered cubic lattice (the particle size varied between 800 and 120 A) revealed a pronounced anomoly in the hyperfine structure of 190 and 120 A particle spectra; this confirms the theoretical dependence of anisotropy energy on the particle size.

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REEL/FRAME
19731076

21

1/2 035 UNCLASSIFIED PROCESSING DATE--11DEC70

TITLE--INVESTIGATION OF COSMIC RAY INDUCED TRACKS IN METEORITIC MINERALS
-U-

AUTHOR-(05)-KASHKAROV, L.L., GENAYEVA, L.I., MALISHEV, V.V., SATARUVA, L.M., LAVRUKHINA, A.K.

COUNTRY OF INFO--USSR, HUNGARY

SOURCE--INTERNATIONAL CONFERENCE ON COSMIC RAYS, 11TH, BUDAPEST, HUNGARY, AUGUST 25-SEPTEMBER 4, 1969, PROCEEDINGS. VOLUME 1 ORIGIN AND GALACTIC

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ASTRONOMY,ASTROPHYSICS, ATMOSPHERIC SCIENCES

TOPIC TAGS--METEORITE, MINERAL, COSMIC RAY, NUCLEUS, PROTON, TRACK ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605061/B03 STEP NO--HU/2506/70/029/000/0449/0452

CIRC ACCESSION NO--AT0144425

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AT0144425

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO BASIC COSMIC RAY TRACK SOURCES ARE CONSIDERED: HEAVY PRIMARIES (Z GREATER THAN 22) AND SECONDARY SPALLATION AND FISSION PRODUCTS BY HIGH ENERGY PROTON INTERACTIONS IN METEORITIC CONSTITUENTS. WE PRESENT HERE EXPERIMENTAL DATA ON CALIBRATION OF TRACK LENGTHS IN METEORITIC SILICATE MINERALS. THE INVESTIGATED MINERALS WERE IRRADIATED IN THE HEAVY ION AND HIGH ENERGY PROTON ACCELERATORS IN DUBNA. FINALLY WE REPORT THE RESULTS OF MEASURING FOSSIL TRACK DENSITIES AND LENGTH DISTRIBUTION IN OLIVINE CRYSTALS SAMPLED FROM SEVERAL REGIONS OF THE PALLASITE LLIMAES. THE RELATION VVH-VH COSMIC RAY NUCLEI APPROXIMATELY 2 TIMES 0.0001 WAS OBTAINED. FACILITY: AKADEMIIA NAUK SSSR, INSTITUT GEOKHIMII I ANALITICHESKOI KHIMII, MOSCOW, USSR.

UNCLASSIFIED

Mining, Petroleum, Geological

USSR UDC: 622.011.43

BRICHKIN, A. V., GENBACH, A. N., PEREVERTUN, V. V., ROSLYAKOVA, T. V.

"Concerning the Mechanism of Thermal and Thermomechanical Methods of Rock Destruction"

Nauch. tr. Kazakhsk. politekhn. in-t (Scientific Works. Kazakh Polytechnical Institute), Alma-Ata, 1971, pp 392-396 (from RZh-Mekhanika, No 5, May 72, Abstract No 5V586)

Translation: It is noted that solid rocks are intensively destroyed by a heat flux (jet). In porous rocks with a strongly developed crack structure, destruction by the thermal method takes place slowly and unsteadily. In this case, combined heat and mechanical action on the rock is recommended. Indentation of a flat punch into a rock preheated by a flux is considered. Stresses in this case are determined as the sum of the stresses due to the heat alone and to the external load in the absence of heating. The paper presents the results of calculation of the pressure on the punch as a function of the heat flux for granite and teschenite. The products of thermomechanical destruction are particles with a size of the order of 0.1 cm. It is noted that there exists a definite relation between the thermal action,

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USSR

BRICHKIN, A. V. et al., Nauch. tr. Kazakhsk. politekhn. in-t, Alma-Ata, 1971, pp 392-396

the mechanical load on the punch, and the size of the punch which give maximum productivity with minimum power expenditures. G. M. Lyakhov.

USSR

SEYTBATALOV, S. M., and GENBACH, A. N.

"Acoustic Radiations of the Jet of Thermal Instruments With Chambers of Varying Colume"

Tr. Kazakhsk. politekhn. in-ta (Works of Kazakh Polytechnic Institute), 1970, sb. 31, pp 173-175 (from RZh-Mekhanika, No 1, Jan 71, Abstract No 1B301 by Ye. F. Afanas'yev)

Translation: The article presents results of experimental research on aerodynamic noise created by rocket-type jet-flame burners, which are widely used for cutting, piercing and working minerals. It is noted that the general noise level declines with a decrease in the length of the combustion chamber. The authors present in the form of graphs the jet noise spectrum and noise level as a function of combustion chamber length.

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1/2 031 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--ENTHALPY OF FORMATION OF TETRAPHENYLGERMANE AND GE C SUBAROMATIC BOND ENERGY -U-

AUTHOR-(03)-SHAULOV, YU.KH., PEDOROV, A.K., GENCHEL, V.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1) 262-3

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOGERMANIUM COMPOUND, ENTHALPHY, HEAT OF COMBUSTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0472 STEP NO--UR/0076/70/044/001/0262/0263

CIRC ACCESSION NO--AP0107078

UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0107078

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM HEAT OF COMBUSTION OF TETRAPHENYLGERMANE, THE HEAT OF FORMATION, DELTA H SUBF DEGREES (KCAL-MOLE), AND GE C SUBAROMATIC BOND ENERGY, E (KCAL), WERE CALCD. THE FOLLOWING VALUES WERE OBTAINED: (DELTA H SUBF DEGREES) EQUALS 123.7, (DELTA H SUBF DEGREES) EQUALS 102.8 FOR THE GASEOUS AND SOLID STATE, RESP., AND E EQUALS 62. GE C SUBAROMATIC BOND ENERGY IS HIGHER THAN GE C SUBALIPHATIC BOND ENERGY.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--ANTIBIOTIC POLYRESISTANT STAPHYLOCOCCAL CARRIER STATE IN PATIENTS WITH TUBERCULOSIS AND IN HEALTHY PERSONS -U-

AUTHOR-(04)-GENCHIKOV, L.A., ATOPEK, S.YA., KALYUK, A.N., SOKOLOVSKIY, V.T.

COUNTRY OF INFO--USSR

SOURCE--PROBL TUBERK 48(1): 49-53. 1970

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUBERCULOSIS, STAPHYLOCOCCUS, ANTIBIOTIC, DRUG RESISTANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0450 STEP NO--UR/0000/70/048/001/0049/0053

CIRC ACCESSION NO--AP0134218

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--2/NOV70
CIRC ACCESSION NO--AP0134218
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXCRETION BY TUBERCULOUS PATIENTS OF POLYRESISTANT STAPHYLOCOCCI AND ALSO THE STAPHYLOCOCCAL CARRIER STATE IN TUBERCULOUS PATIENTS, MEDICAL STAFF MEMBERS AND HEALTHY PERSONS OUTSIDE THE HOSPITAL WERE STUDIED. IN LOOKING INTO THE CARRIER STATE PROBLEM, THE STAPHYLOCOCCI CULTURES MOST RESISTNAT TO ANTIBIOTICS WERE OBTAINED IN THE GROUP OF PATIENTS, WERE LESS FREQUENTLY OBSERVED IN THE MEDICAL STAFF GROUP AND EVEN LESS IN HEALTHY PERSONS. IN THE CLINIC, THE POLYRESISTANT STAPHYLOCOCCAL CULTURES SHOWED CONSIDERABLY HIGHER RESISTANCE LEVELS AND WERE MUCH MORE FREQUENT (IN 88.5PERCENT OF PATIENTS AN/IN 66.9PERCENT OF THE MEDICAL STAFF MEMBERS) THAN WAS THE CASE IN HEALTHY SUBJECTS. IT IS OBVIOUS THAT WITH LENGTHY STAYS IN MEDICAL ESTABLISHMENTS AND LONG TERM MEDICATION AIDS THE OCCURRENCE OF INTENSIVE CROSS TRANSMISSION OF MICROBIAL FORMS RESISTANT TO ANTIBIOTICS BOTH ON THE PART OF PATIENTS AND MEDICAL STAFF MEMBERS. BECAUSE OF THIS, MEDICAL PERSONNEL SHOULD BE SUBJECTED TO SPECIAL EXAMINATIONS, AND IN CASES OF RESISTANT STAPHYLOCOCCI BEING EXCRETED, APPROPRIATE SANITARY MEASURES SHOULD BE UNDERTAKEN. FACILITY: DEP. EPIDEMIOL., N. R. GAMALEYA INST. EPIDEMIOL. MICROBIOL., MOSCOW, USSR.

UNCLASSIFIED

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USSR

UDC 536.421.4+536.421.1

GENDELEV, S. Sh., ZAYONCHKOVSKIY, Ya. A., and LYUBSHIN, V. V.

"Effect of Crystallization Conditions on the Smoothness of Manganese Ferrite Film Surfaces"

V sb. Kristallizatsiya i faz. prevrashcheniya (Crystallization and Phase Transformations--collection of works) Minsk, "Nauka i tekhn." 1971, pp 86-90 (from RZh-Fizika, No. 9, 1971, Abstract No. 9E399)

Translation: The effect of temperature and rate of crystallization on the dimensions and form of the bumps in the growth of manganese ferrite films is investigated. The films were grown by the method of chemical transport reactions in a small gap. With increasing temperature, there were at first many and very small growing bumps; these reached a maximum and then degenerated. The size of the truncated bumps increased continuously. With an increase in the rate of growth, the height of the bumps increased, and their shape changed from pyramidal to conical. Author's abstract

1/1

USSR UDC: 621.396.6:621.318(088.8)

RUBAL'SKAYA, E. V., GENDELEV, S. Sh., RUBINSHTEYN, B. Ye., YAKOVLEV, Yu. M. TITOVA, A. G.

"A Charge for Growing Ferrite Single Crystals"

USSR Author's Certificate No 253953, filed 4 May 67, published 30 Apr 70 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V422 P)

Translation: This Author's Certificate introduces a charge composition which makes it possible to increase the saturation induction of ferrites (90.5 T) while retaining a narrow ferromagnetic resonance line. The charge consists of higher oxides of iron, zinc, lead and boron (13.3-16.0, 0.3-1.8, 68.1-68.7 and 10.4-11.0 wt.% respectively), and Li_2CO_3. Heat treatment conditions are described. Also covered by the patent is a charge composition for making ferrites with a saturation induction of up to 0.44 T; a distinguishing feature of this composition is the substitution of gallium oxide for zinc oxide. The propotions by weight are also changed. N. S.

1/1

USSR UDC: 69.059.324

GENDEL', E.M.

"Stopping the Tilt and Straightening of a Building in Sumgait"

Moscow, Osnovaniya, Fundamenty i Mekhanika Gruntov, No 6, 1971, pp 26-28

Abstract: The subject building is located in Sumgait, Azerbaidzhan SSR. It is 85.8 m long, 12.2 m wide and 16.8 m high. The foundation consists of five rows of concrete blocks. The soil under the foundation consists of 1.5 m of soft clay, 3.5 m of loam and of hard clay underneath. The load is transmitted to the foundation by three longitudinal walls. Shortly before its completion the building started to tilt toward the front, the front longitudinal wall sunk up to 800 mm. This was partly due to the flooding of the basement with hot water when the heating pipe failed.

USSR

GENDEL', E. M., Osnovaniya, Fundamenty i Mekhanika Gruntov, No 6, 1971, pp 26-28

Further tilting was prevented by braces set at 45° against the front wall.

Then 16 piles were installed under the front well and 19 piles under the internal longitudinal wall. The piles were about 6 m long and consisted of several sections of steel pipe 0.5 m long each. A hydraulic jack attached underneath the wall pressed the pile into the ground, then the plunger of the jack was retracted and the next section was welded on top of the pile. The pipes were filled with concrete.

Straightening the building was achieved by means of jacks installed on top of the piles. The walls were raised 8.8 mm at a time and steel plates were inserted. The levelling was monitored by means of interconnected, vertical, graduated glass tubes, partly filled with water and located at various points of the building.

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1/2 022 UNCLASSIFIED PROCESSING DATE--11DEC70
TITLE--PHARMACOLOGY OF N,PROPYLAJMALINE BROMIDE, NPAB -U-

AUTHOR--GENLENSHTEYN, F.I.

COUNTRY OF INFO--USSR

SOURCE--FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(3), 303-5

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2/2 022 UNCLASSIFIED PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AP0139565
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INFUSION OF N,PROPYLAJMALINE BROMIDE (0.6-5.0 MG-KG) INTO THE VEINS OF GUINEA PIGS OR CATS DEPRESSED THE SINOAURICULAR NODE AUTOMATISM, SLOWED THE ATRIOVENTRICULAR AND INTRAVENTRICULAR CONDUCTION, AND LENGTHENED THE ELEC. SYSTOLE OF THE VENTRICLES. IN CATS, IT HAD A NEG. INOTROPIC AND HYPOTENSIVE EFFECT SIMILAR TO THAT OF OTHER QUINIDINE LIKE COMPDS. FACILITY: MED. FAK., MORD. GOS. UNIV., SARANSK, USSR.

Coatings

USSR UDC 621.744.079

STUPACHENKO, Yu. T., SHTEYNBERG, L. A., GENDLER, A. Kh., and DMITRIYEV, B. P.

"Separating Protective Coating for Model Equipment"

Moscow, Mashinostroitel', No 11, Nov 73, p 23

Abstract: The PELT-1 composition (Author's Certificate No 257702) has been developed in the capacity of a separating protective coating for the foundry equipment at Zaporozh'ye Technological Design and Planning Institute. The composition consists of polyvinyl chloride chlorinated resin PSKh-N, epoxy resin ED-6, polyethylene-polyamine, R-4 solvent, and titanium dioxide. The preparation of the composition, its principal component - the fillers, the introduction of the hardening agent (10 weight parts polyethylene-polyamine) and of the filler (100 weight parts titanium dioxide), and the application method of the coating are described. The PELT-1 composition is recommended as protective coating of the wooden model equipment, of parts of agricultural machines for preparing and distribution of fertilizer, and of the metallurgical equipment for preparing exothermal mixtures.

1/1

USSR

GENDLER, V. Ye., KALACHENKO, A. A., SPIRIDONOV, N. G.

"Algorithm and Program for Separation of a Sample with Normal Distribution"

Mat. Metody v Geol. [Mathematical Methods of Geology -- Collection of Works], No 2, Alma-Ata, 1971, pp 190-196 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V702, by A. Doroshenko).

Translation: A program is described, allowing screening of elements of a sample distorting the normal distribution on the basis of the condition of normality with respect to asymmetry and excess. Points are screened out which do not fall into the interval $\bar{x}\pm3$. The statement of the problem is as follows. For each of n samples of N points each, the statistics are defined up to the fourth moment inclusively. The normality of the distribution rule of the sample is determined by the asymmetry and excess from the condition of fulfillment of inequalities $|A/\sqrt{6/N}| \leq 3|E/2\sqrt{6/N}| \leq 3$. If the sample does not correspond to the normal distribution, the point with the greatest distance from the interval $x\pm3s$ is eliminated and the condition of normality is tested once more for the remaining elements of the sample. The process continues until the condition of normality of the distribution rule is fulfilled. The program is written for the Ural-2 computer, occupying 610_8 memory locations and permitting up to 1100 sample points.

1/1

USSR

UDC 621.762:669.018.24

GENDLIN, Ya. M.

"Technology of Manufacture of Material for Bearing Backings"

Tekhnol. avtomobilestroyeniya. Nauchno-tekhn. sb. [Motor Vehicle Building Technology. Scientific and Technical Collection], No. 2 (11), 1970, pp. 30-31 (Translated from Referativnyy Zhurnal-Metallurgiya, No. 2, 1971, Abstract No. 2 G459 by the author)

Translation: The results are analyzed from studies on the creation of a technology for production of a steel-metal ceramic bronze strip for bearing backings. The basic parameters of the technological process, results of testing of backings, and primary data on the economic effectiveness of the application of the technological process are presented.

1/1

USSR UDC 534.222.2

GENDUGOV, Y. M., ZVEREV, I. N., Department of Gas and Wave Mechanics, Moscow State University

"Surface Temperature of a Heat-Conducting Liquid Behind a Shock Wave in the Presence of Mass Exchange and Chemical Reactions in the Boundary Layer"

Moscow, Vestnik Moskovskogo Universiteta, Seriya I: Matematika, Mekhanika, No 1, Jan/Feb 73, pp 110-113

Abstract: A solution is found for the problem of surface temperature of a thin film of liquid fuel ($d \sim 100$ μm) applied to a wall in the vicinity behind a shock wave moving in a quiescent gaseous oxidant at constant velocity in the presence of mass exchange and chemical reactions in the boundary layer. Since the liquid film is not heated to thicknesses of more than 60 μm within a time $t = 100$ μs, it is assumed that the film fills the half-space to the left of the y-axis, and its motion is disregarded. The systems of equations for the gas and for the heat conductivity of the fuel are simultaneously solved so that the surface temperature of the fuel behind the compression shock is constant. In Reglend's work (K. Reglend, "Laminar Boundary Layer Behind a Shock in the Presence of Vaporization and

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USSR

GENDUGOV, V. M., ZVEREV, I. N., Vestn. Mosk. Un-ta: Ser. I, Mat., Mekh., No 1, Jan/Feb 73, pp 110-113

Burning", Raketnaya Tekhnika i Kosmonavtika, 8, No 3, 1970) it is assumed that the fuel temperature throughout the entire thickness of the layer is equal to the equilibrium temperature of the boiling point for any values of the M_s numbers. However, the present paper shows that an M_s number exists which depends on the physical and mechanical properties of the fuel and is such that the fuel temperature can be considered equal to the equilibrium boiling point only for M_s values greater than the given value.

2/2

USSR

UDC 537.226.33:535.551

KAMZINA, L. S., KRAYNIK, N. N., GENE, V. V., and MYL'NIKOVA, I. Ye.,
Institute of Semiconductors, USSR Academy of Sciences

"Elasto-Optical Effect in Ferroelectric Materials With a Diffused Phase Transition"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1862-1864

Abstract: The authors investigate the elasto-optical effect in ferroelectric materials with diffused phase transition $PbMg_{1/3}Nb_{2/3}O_3$(PMN) and $PbZn_{1/e}Nb_{2/3}O_3$(PZN). They determine the magnitude of the half-wave mechanical stresses in the wavelength band of 4000-7000 Å and measure the variation with temperature of the piezooptical coefficients $\pi_{11}-\pi_{12}$. They also find the dependence of the slope of the double refraction Δn on the size of the mechanical load in the area of diffusion of the phase transition. The authors find that a study of the elasto-optical properties of perovskite type ferroelectric materials permits a better understanding of the nature and character of the diffused phase transition and enables the researcher to distinguish the true electro-optical effect in the total effect; they

1/2

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KAMZINA, L. S., et al., Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 9, Sep 71, pp 1862-1864

feel that such investigations are of great practical significance. They show graphically the temperature boundary of diffusion for PMN and PZN. The article contains 3 illustrations, 1 table, and 4 bibliographic entries.

2/2